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10/520,175	08/25/2006	Ian James Forster	124382	9562

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EXAMINER	
NGUYEN, AN T	

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
04/30/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/520,175	FORSTER, IAN JAMES	
	Examiner	Art Unit	
	An T. Nguyen	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is a Final Office Action in response to communication received 12/28/2009. No Claim has been canceled. Claims 17-32 have been amended. Claims 33-36 have been added. Therefore, Claims 17-36 are pending.

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 17, 19, 20, 25, 32-34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al (US 7333786) in view of Bateman et al (US 3487310).

As per claim 17, Kikuchi teaches a reader interfacing device **(abstract fig. 1, 30)**, configured to: establish a first communication path with a reader configured to emit and receive interrogating radiation at a first radiation frequency **(col. 7, lines 8-37: reader/writer interrogate/receive the tag through matching circuit)**; and establish a second communication path with a remote tag or smart label configured to be interrogated using radiation of a second frequency **(col. 7, lines 8-37: reader/writer interrogate/receive the tag through matching circuit)**; wherein the reader interfacing device is further configured to receive the interrogating radiation at the first radiation frequency from the reader **(col. 7, lines 44-51: information is sent from antenna coil 11 to antenna coil 31 of the tuning circuit 30)**,

translate the received interrogating radiation into an output signal, and radiate the output signal at the second radiation frequency to the remote tag or smart label **(col. 8, lines 6-20: antenna coil 21 receives the electrical waves, transmitted from the reader through the matching tuning circuit)**.

Kikuchi does not teach the second frequency different from the first frequency by at least an order of magnitude.

Bateman teaches two transceivers transmitting and receiving carrier frequencies f1 and f2 for communication with each other through a repeater. The frequencies f1 and f2 are different by constant factor on the order of 2 to 20 megacycles **(col. 3, lines 10-38)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi's system to use different frequencies, as taught by Bateman.

The motivation would be to provide a new and improved transponder for coupling single signals between transceivers which are individually adapted to operate on a single carrier frequency **(col. 2, lines 27-31).**

As per claims 19 and 33, Kikuchi in view of Bateman teaches the reader interfacing device and system of claims 17 and 32, wherein the reader interfacing device is further configured to be mutually magnetically coupled to the reader for receiving the interrogating radiation therefrom and for providing a modulated load thereto for communicating back to the reader **(Kikuchi col. 7, lines 4-29: communicates using electromagnetic coupling)**.

As per claim 20, Kikuchi in view of Bateman teaches the reader interfacing device of claim 19, comprising a first loop antenna configured to magnetically couple to a corresponding second loop antenna of the reader **(Kikuchi fig. 1, elements 11 and 31)**.

As per claim 25, Kikuchi in view of Bateman teaches the reader interfacing device of claim 17, comprising a translator configured to convert between a modulation format used by the reader for modulating information onto the interrogating radiation to be received by the reader interfacing device and a modulation format used by the remote tag or smart label for communicating to and from the reader interfacing device **(Bateman col. 3, lines 39-69: converter 37 converts frequency f1 to f2 and vice versa)**.

As per claim 32, Kikuchi teaches a system **(abstract)** comprising: a reader interfacing device **(fig. 1, element 30)**; a reader configured to emit and receive interrogating radiation at a first radiation frequency **(fig. 1, element 10; col. 7, lines 8-23: reader 10)**; and a remote tag or smart label configured to receive radiation at a second frequency **(col. 8, lines 1-14: non-contact IC card receives the electrical waves, transmitted from the reader/writer through the matching tuning circuit)**; wherein the reader is further configured to communicate through the reader interfacing device to the remote tag or smart label **(col. 7, lines 8-14; col. 8, lines 6-14: reader/writer communicates with the non-contact IC card through the matching tuning circuit)**, and wherein the remote tag or smart label is configured to generate a return signal at the first radiation frequency that is translated into an output signal by the reader interfacing device and communicated to the reader as radiation at the second radiation

frequency **(col. 8, lines 15-39: remote tag sends a return signal to the reader through the matching circuit)**.

Kikuchi does not teach the second frequency different from the first frequency by at least an order of magnitude.

Bateman teaches two transceivers transmitting and receiving carrier frequencies f1 and f2 for communication with each other through a repeater. The frequencies f1 and f2 are different by constant factor on the order of 2 to 20 megacycles **(col. 3, lines 10-38)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi's system to use different frequencies, as taught by Bateman.

The motivation would be to provide a new and improved transponder for coupling single signals between transceivers which are individually adapted to operate on a single carrier frequency **(col. 2, lines 27-31).**

As per claim 34, Kikuchi in view of Bateman teaches the system of claim 33, wherein the reader interfacing device comprises a translator configured to convert between a modulation format used by the reader for modulating information onto the interrogating radiation to be received by the reader interfacing device and a modulation format used by the remote tag or smart label for communicating to and from the reader interfacing device **(Bateman col. 3, lines 39-69: converter 37 converts frequency f1 to f2 and vice versa)**.

As per claim 35, Kikuchi teaches a reader interfacing device **(fig. 1, element 30)**, comprising: means for emitting and receiving radiation at a first frequency to establish a first communication path with a reader **(col. 7, lines 8-14, lines 38-51: communication between the reader and tag through tuning matching circuit)**; means for emitting and receiving radiation at a second frequency to establish a second communication path with a remote tag or smart label configured to be interrogated using radiation at the second frequency **(col. 8, lines 6-15, 21-39: the tag receives the interrogation signal, modulates the carrier waves, generate transmission signals)**; means for translating radiation received from the reader at the first frequency into a first output signal to be radiated at the second frequency to the remote tag or smart label **(col. 10, lines 42-64: inducing a magnetic flux B for communicating with the tag antenna 21)**; and means for translating radiation received from the remote tag or smart label at the second frequency into a second output signal to be radiated at the first frequency to the reader **(col. 7, lines 52-60: induced current is generated in the antenna coil 11 as a result of changes in the magnetic flux in the antenna coil 31 of the tuning circuit 31)**.

Kikuchi does not teach the second frequency different from the first frequency by at least an order of magnitude.

Bateman teaches two transceivers transmitting and receiving carrier frequencies f1 and f2 for communication with each other through a repeater. The frequencies f1 and f2 are different by constant factor on the order of 2 to 20 megacycles **(col. 3, lines 10-38)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi's system to use different frequencies, as taught by Bateman.

The motivation would be to provide a new and improved transponder for coupling single signals between transceivers which are individually adapted to operate on a single carrier frequency **(col. 2, lines 27-31)**.

3. Claims 18, 21 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al (US 7333786) in view of Bateman et al (US 3487310), and further in view of Forster (US 6046668).

As per claims 18 and 36, Kikuchi in view of Bateman teaches the reader interfacing device of claims 17 and 35.

Kikuchi in view of Bateman does not teach the reader interfacing device comprising a power converter configured to convert the interrogating radiation received from the reader and thereby generate power supply potentials for powering the reader interfacing device, wherein the generated power supply potentials are supplemental to power provided from an external source.

Forster teaches using semi-passive type transponder. Semi-passive transponder is known to have internal batteries to power their circuits for monitoring environmental conditions, but requires RF energy transferred from the reader/interrogator similar to passive tags to power a tag response **(col. 3, lines 59-67)**.

It is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's reader interfacing device by including internal components

similar to components found in the semi-passive transponder for achieving similar functionalities, as taught by Forster.

The motivation would be for providing a way to have a device with low power consumption and compact since semi-passive tag requires minimal radio frequency circuitry **(col. 1, lines 48-55)**.

As per claim 21, Kikuchi in view of Bateman teaches the reader interfacing device claim 20.

Kikuchi in view of Bateman does not teach wherein the reader interfacing device further comprises a modulated field effect transistor connected to the first loop antenna and configured to provide a variable load detectable at the reader.

Forster teaches wherein the reader interfacing device further comprises a modulated field effect transistor connected to the first loop antenna and configured to provide a variable load detectable at the reader **(col. 3, lines 8-19: field affect transistor connected to antenna to reflection coefficient low).**

It is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's reader interfacing device by including a field effect transistor connected to an antenna, as taught by Forster.

The motivation would be to have the transistor configured to operate as a self oscillating mixer to detect modulation of an input signal **(col. 2, lines 21-29).**

4. Claims 22-24, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al (US 7333786) in view of Bateman et al (US 3487310), and further in view of Claudio (EP 1209615 A2).

As per claim 22, Kikuchi in view of Bateman teaches the reader interfacing device of claim 17.

Kikuchi in view of Bateman does not teach wherein the second frequency is in a range of 300 MHz to 90 GHz.

Salvador teaches wherein the second frequency is in a range of 300 MHz to 90 GHz **(para [0018]: microwave transmitting channel which activates the responding TAG; microwave wave range in the 300 MHz to 300 GHz)**.

It is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's second frequency by transmitting the second frequency at microwave level, as taught by Salvador.

The motivation would be that microwave technology can offer best performance in term of high speed data exchange over distance of tens of meters **(para [0007])**.

As per claim 23, Kikuchi in view of Bateman and Salvador teaches the reader interfacing device of claim 22, wherein the reader interfacing device is further configured to emit radiation to the remote tag or smart label and receive radiation therefrom using patch antennas **(Salvador para [0034] and [0035]: circuit comprising a planar antenna with rectangular patch)**.

As per claim 24, Kikuchi in view of Bateman and Salvador teaches the reader interfacing device of claim 22, wherein the second frequency is substantially in a range of 2 GHz to 3 GHz **(Salvador para [0018]: microwave transmitting channel which activates the responding TAG; microwave wave range in the 300 MHz to 300 GHz)**.

As per claim 29, Kikuchi in view of Bateman teaches the reader interfacing device according to claim 17.

Kikuchi in view of Bateman does not teach the reader interfacing device further configured to establish the first communication path with an optical reader via an optical interface.

Salvador teaches the reader interfacing device further configured to establish the first communication path with an optical reader via an optical interface **(para [0055]: transmitter operating at optic frequencies)**.

It is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's reader interfacing device by including an optical interface for receiving optical frequencies, as taught by Salvador.

The motivation would be for having a communication interfacing device that is less power consumption and efficient in short range communication.

As per claim 31, Kikuchi in view of Bateman teaches the reader interfacing device of claim 17.

Kikuchi in view of Bateman does not teach comprising an optical interface configured to establish the second communication path between the reader interfacing device and the remote tag or smart label.

Salvador teaches the reader interfacing device comprising an optical interface configured to establish the second communication path between the reader interfacing device and the remote tag or smart label **(para [0055]: transmitter operating at optic frequencies)**.

It is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's reader interfacing device by including an optical interface for establishing the second communication path at optical frequencies between the reader interfacing device and the remote tag, as taught by Salvador.

The motivation would be for having a communication interfacing device that is less power consumption and efficient in short range communication.

5. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al (US 7333786) in view of Bateman et al (US 3487310), and further in view of Carrender (US 2002/0149484).

As per claim 26, Kikuchi in view of Bateman teaches the reader interfacing device of claim 25.

Kikuchi in view of Bateman does not teach wherein the translator comprises: an amplitude demodulator configured to demodulate a first received signal generated in the reader interfacing device in response to receiving the interrogating radiation from the reader and thereby generating a first demodulated signal; and a modulator configured to receive a carrier signal at the second frequency and modulate the carrier signal with the first demodulated signal to generate radiation for interrogating the remote tag or smart label.

Carrender teaches wherein the translator comprises: an amplitude demodulator configured to demodulate a first received signal generated in the reader interfacing device in response to receiving the interrogating radiation from the reader and thereby generating a first demodulated signal **(para [0026]: demodulator could be amplitude or phase)**; and a modulator configured to receive a carrier signal at the second frequency and modulate the carrier signal with the first demodulated signal to generate radiation for interrogating the remote tag or smart label **(para [0028]: modulator 56 generates control signals to control the modulation of reflected radio-frequency signal).**

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman's interfacing device by combining Carrender's method for amplitude modulation/demodulation technique.

The motivation is well known in the art of communication system where the information to be send needs to be modulate with a carrier signal at a certain frequency before transmission and then demodulate at the receiving end.

As per claim 27, Kikuchi in view of Bateman and Carrender teaches the reader interfacing device of claim 26, wherein the translator further comprises a demodulator

configured to heterodyne mix a second received signal generated in response to receiving radiation from the remote tag or smart label with the carder signal to generate a second demodulated signal for use in providing load modulation detectable at the reader **(Carrender para [0022] and [0025]: heterodyne technique reception technique to receive and process the reflected signal)**.

As per claim 28, Kikuchi in view of Bateman and Carrender teaches the reader interfacing device of claim 27, wherein the carrier signal is generated by a microwave oscillator frequency locked to the first frequency **(Carrender para [0019]: oscillator)**.

6. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al (US 7333786) in view of Bateman et al (US 3487310), and further in view Salvador Claudio (EP 1209615) and further in view of Wei (CN 2304947).

As per claim 30, Kikuchi in view of Bateman and Salvador teaches the reader interfacing device of claim 29.

Kikuchi in view of Bateman and Salvador does not teach wherein the reader interfacing device further comprises a laser scanner and a liquid crystal display wherein the laser scanner is configured to scan information presented on the display LCD to provide information for exchange between the optical reader and the reader interfacing device.

Wei teaches wherein the reader interfacing device further comprises a laser scanner and a liquid crystal display wherein the laser scanner is configured to scan information presented on

the display LCD to provide information for exchange between the optical reader and the reader interfacing device **(Wei page 4 line 30 to page 5 line 1: With reference to Fig. 3, this utility model is formed by power supply 31, reset key (RESET) 32, single-plate device 33, bar code interfacing circuit 344 liquid crystal or light-emitting diode state display 35" and page 5, line 17-21: "After a bar code ticket is read in by a laser reader, data are sent by bar code interfacing circuit 34 to single-plate device 33 for processing. After reading and writing, a plurality of real-time states is displayed by displayer 35")**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Bateman and Salvador's interface device by combining a laser scanner, a liquid crystal display capable of displaying information exchange between the reader and the device as taught by Wei.

The motivation would be to provide a interfacing device capable of processing information from two different protocols to provides convenience for the subway passengers **(abstract)**.

Response to Arguments

7. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to An T. Nguyen whose telephone number is (571) 270-5167. The examiner can normally be reached on M-T 9:00 AM-6:30 PM, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571) 272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AN/
Examiner
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/Brian A Zimmerman/
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